

Art Unit: 3679

Ed

1-6 (Cancelled)

7. A method of providing pulsedwidth modulated bitline and wordline signals for performing spatial to frequency transforms of analog signals from sensor elements of a CMOS sensor array, said transform being characterized by a basis function, comprising the steps of:

dividing a wordline period into intervals, such that each interval has an accumulated pulsedwidth corresponding to a coefficient of said basis function, thereby providing a pulsedwidth modulated wordline signal; and

dividing a bitline period into said intervals and into subintervals, such that each subinterval of each interval has an accumulated pulsedwidth corresponding to a coefficient of said basis function.

8. The method of Claim 7, wherein said transform is a discrete cosine transform.

9. The method of Claim 7, wherein said transform is a discrete articulated trapezoid transform.

10-16 (Cancelled)

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17. The method of Claim 8, wherein:

said step of dividing the wordline period into intervals includes dividing a wordline period T into eight intervals of duration  $T \cos(n \times 11.25)$ , where n is an integer 0, 1, 2, 3, 4, 5, 6 or 7.

18. The method of Claim 7, wherein:

said step of dividing the wordline period into intervals includes dividing a wordline period T into intervals  $t_0 = 0$ ,  $t_1 = 0.19T$ ,  $t_2 = 0.38T$ ,  $t_3 = 0.55T$ ,  $t_4 = 0.71T$ ,  $t_5 = 0.83T$ ,  $t_6 = 0.92T$  and  $t_7 = T$ .

19. The method of Claim 18, wherein:

said step of dividing a bitline period into said intervals and into subintervals includes

dividing an interval  $t_1-t_0$  into subintervals  $t_{11} = 0.19(t_1-t_0)$ ,  $t_{12} = 0.38(t_1-t_0)$ ,  $t_{13} = 0.55(t_1-t_0)$ ,  $t_{14} = 0.71(t_1-t_0)$ ,  $t_{15} = 0.83(t_1-t_0)$ ,  $t_{16} = 0.92(t_1-t_0)$  and  $t_{17} = (t_1-t_0)$ ,

dividing an interval  $t_2-t_1$  into subintervals  $t_{21} = 0.19(t_2-t_1)$ ,  $t_{22} = 0.38(t_2-t_1)$ ,  $t_{23} = 0.55(t_2-t_1)$ ,  $t_{24} = 0.71(t_2-t_1)$ ,  $t_{25} = 0.83(t_2-t_1)$ ,  $t_{26} = 0.92(t_2-t_1)$  and  $t_{27} = (t_2-t_1)$ ,

dividing an interval  $t_3-t_2$  into subintervals  $t_{31} = 0.19(t_3-t_2)$ ,  $t_{32} = 0.38(t_3-t_2)$ ,  $t_{33} = 0.55(t_3-t_2)$ ,  $t_{34} = 0.71(t_3-t_2)$ ,  $t_{35} = 0.83(t_3-t_2)$ ,  $t_{36} = 0.92(t_3-t_2)$  and  $t_{37} = (t_3-t_2)$ ,

dividing an interval  $t_4-t_3$  into subintervals  $t_{41} = 0.19(t_4-t_3)$ ,  $t_{42} = 0.38(t_4-t_3)$ ,  $t_{43} = 0.55(t_4-t_3)$ ,  $t_{44} = 0.71(t_4-t_3)$ ,  $t_{45} = 0.83(t_4-t_3)$ ,  $t_{46} = 0.92(t_4-t_3)$  and  $t_{47} = (t_4-t_3)$ ,

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dividing an interval  $t_5-t_4$  into subintervals  
 $t_{51} = 0.19(t_5-t_4)$ ,  $t_{52} = 0.38(t_5-t_4)$ ,  $t_{53} = 0.55(t_5-t_4)$ ,  
 $t_{54} = 0.71(t_5-t_4)$ ,  $t_{55} = 0.83(t_5-t_4)$ ,  $t_{56} = 0.92(t_5-t_4)$  and  
 $t_{57} = (t_5-t_4)$ .

dividing an interval  $t_6-t_5$  into subintervals  
 $t_{61} = 0.19(t_6-t_5)$ ,  $t_{62} = 0.38(t_6-t_5)$ ,  $t_{63} = 0.55(t_6-t_5)$ ,  
 $t_{64} = 0.71(t_6-t_5)$ ,  $t_{65} = 0.83(t_6-t_5)$ ,  $t_{66} = 0.92(t_6-t_5)$  and  
 $t_{67} = (t_6-t_5)$ ,

dividing an interval  $t_7-t_6$  into subintervals  
 $t_{71} = 0.19(t_7-t_6)$ ,  $t_{72} = 0.38(t_7-t_6)$ ,  $t_{73} = 0.55(t_7-t_6)$ ,  
 $t_{74} = 0.71(t_7-t_6)$ ,  $t_{75} = 0.83(t_7-t_6)$ ,  $t_{76} = 0.92(t_7-t_6)$  and  
 $t_{77} = (t_7-t_6)$ .

20. The method of Claim 9, wherein:

said step of dividing the wordline period into intervals includes dividing a wordline period 10T into intervals  $t_0 = 0$ ,  $t_1 = 2T$ ,  $t_2 = 4T$ ,  $t_3 = 6T$ ,  $t_4 = 7T$ ,  $t_5 = 8T$ ,  $t_6 = 9T$  and  $t_7 = 10T$ .

REMARKS

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